To: Mercury Citizen Advisory Committee
From: Jon Heinrich, Anne Bogar and Marty Burkholder
Date: April 3, 2002
Subject: Retreat Planning

The following strategy is being proposed for discussion at the April 10th committee meeting. It is intended to help the committee prepare for their retreat scheduled for April 30th and May 1st. We believe it is important that the committee reach agreement on the topical issues and retreat protocol at the April 10th meeting to allow ample time for retreat preparation. Please let me know if you have any immediate comment or suggestions on the approach we are recommending.

Retreat Meeting Strategy

In consideration of the time available to the committee at the retreat we are suggesting that the committee members agree upon a select list of issues to discuss during that meeting. To date the committee has identified approximately 29 issues of importance associated with the proposed rules. It is likely that the committee could be able to fully discuss only a handful of these issues and reach a meaningful conclusion to their dialogue. That conclusion will consist of a consensus recommendation, or a clearly outlined set of alternatives for the Secretary to consider on each selected issue.

We have reviewed the CAC's larger list of priority issues as well as the public comments and made a preliminary list of those issues we believe will be important to include in the retreat agenda. Each issue has a direct connection to language in the proposed rule and concerns a major policy decision related to regulating mercury emissions in Wisconsin.

A. **Trading.** Should compliance with the proposed mercury rules include provision for emission reduction credits created from mercury product collection projects or pollution reduction projects?
B. **Industry Caps.** Should major industrial sources have requirements in the proposed rules that place a cap on their annual mercury emissions?
C. **Growth.** The requirement for new sources to offset increases in mercury emissions. This would include new electric utility boilers as well as any new industrial source that could annually emit 10 pounds of mercury or more.
D. **Electric Reliability.** Are the variance procedures adequate to safeguard electric reliability?
E. **Mercury Reduction Requirement.** The schedule and stringency of mercury emission reductions required of the four major electric utilities.
F. **Balancing State and Federal Regulation.** What is the relationship between a Wisconsin regulation and pending federal regulations that will require mercury emission reductions from electric utility boilers and industrial boilers?
G. **Periodic Rule Evaluation.** The frequency and content of the rule evaluations for the Natural Resources Board.

Following is a list of the remaining priority issues from the CAC process that we have not included in our preliminary selection. Question: "How will the committee want to

address the remaining issues?" One suggestion would be for CAC members, not currently represented, to add their comment offerings so that the Secretary will have the advantage of at least knowing these issues were considered significant to the CAC. He will then be able to take into account how they might inform and influence his recommendations regarding changes to the proposed rule.

Addressing other committee issues. No direct reference in the proposed rules.

Issue No. 3 – Identification of mercury control technologies available today.

Joe Shefchek
Complete an updated review of control technologies from most current technical resources - EPA, EPRI, DOE, and control equipment vendors. This review should identify factors affecting commercial availability as well technical and economic feasibility.
Update rule cost evaluations to include most recent control equipment costs and consider assumptions reflecting potential range of implementation scenarios (e.g., initial phase reductions applied on multiple units, retrofitting costs, stranded costs, etc.)

Annabeth Reitter
In establishing reduction levels the DNR needs to take a technology evaluation approach including an economic and technical feasibility analysis.

Mark Yeager
TAG could enlighten CAC on Hg control technologies, but new control technologies will be developed to meet the demand of what the new rule requires. Therefore write the rule for the highest level of protection of health, the market and technology will respond and people are willing to pay for clean air & water.

Issue No. 4 – What are the mercury contributions from local and regional sources? What are the sources of mercury deposition in Wisconsin?

Joe Shefchek
Update mercury emissions inventory to reflect most recent information on industrial, commercial, domestic and natural sources - including review of data available on the form of mercury emissions (i.e., ionic, elemental, or particulate) as this affects deposition patterns.
Complete atmospheric deposition modeling using updated mercury emissions source inventory and characterization.

Annabeth Reitter
Establish a research council to develop necessary information to identify mercury contributions from local and regional sources and assess environmental impacts from various control options. This work of the research council should serve as the foundation for establishing reduction levels. This work needs to be completed before reduction requirement levels are established.

Mark Yeager
More studies are desirable for tracking information, but time is of the essence to implement the cleanest technology as soon as possible. For the purpose of this rule, about 70% are considered from man-made global sources with 25% from the upper Midwest and about 12% from WI. Of this, utilities account for the majority contribution. Again we can't all wait for each state to clean up it's own backyard before acting.

Issue No. 6 – What are the impacts to human health if no actions are taken?

Joe Shefchek
Complete side-by-side evaluation of various technical resources on mercury health impacts to determine range of risk factors.
Consider a "no action" alternative that takes into consideration future reductions from Federal MACT and potential multi-pollutant bills.

Annabeth Reitter
Benefits analysis conducted by a research council to determine human health impacts resulting from mercury deposition from Wisconsin sources. This information is fundamental in establishing reduction requirements.

Mark Yeager
Accept State Dept. of Health toxicologist's report to CAC citing negative health effects on humans. Human health is declining with no action. Hg fallout affects soil toxicity and directly impacts the human food chain through WI agriculture. Consider "no action" only if humans are proven beyond a doubt to have no reaction to Hg effects in air, water, living lake organisms and are exempt from any environmental interaction.

Issue No. 8 - Best estimate of the environmental improvement from the implementation of the proposed rules. Impact of the proposed rules on fish advisories.

Joe Shefchek
From results of atmospheric deposition modeling, use estimated impacts of wet/dry deposition as modeling inputs to run a Regional Mercury Cycling Model, to estimate the multi-media fate of the mercury in WI watersheds and corresponding impacts to fish advisory levels.
Conduct evaluation to assess net environmental improvements from rule, taking into consideration the need to landfill flyash, which is no longer salable due to carbon and mercury levels.

Annabeth Reitter
Needs to be included as part of a regulatory needs assessment taking into account environmental benefits including impact on fish advisories and economic and technological feasibility issues relating to control.

Wayne Stroessner
This is an issue that must be scientifically answered by the TAG. The statement "Ultimately, regional reductions in mercury emissions will be needed to improve water bodies in the state," does not included how this can be accomplished. The release of any mercury only adds to the amount of mercury already in our water bodies. By reducing the amount of emissions, only the rate of increase is reduced. We might still be releasing a greater amount of mercury than the environment can handle. The total quantity is still increasing. Unless the TAG can establish the rate of emissions vs. the rate of sediment reduction, there is not reason to suggest that mercury levels in water bodies in fish will be reduced.
An answer by Doug Knauer, WDNR Bureau of Research states: "Mercury that becomes attached to bottom sediments is for the most part not very available for methylation by bacteria." (This topic and the method and the rate by which mercury becomes attached to bottom sediments should be scientifically explained in the rule.)

Mark Yeager
Assuming WI's location on the planet is not much different from MN's, a good estimate is to see Hg deposition in WI alone reduced from 9% to 15%. Health care costs in the general population and school districts for special education programs will be reduced. Other than allowing improved human health, it may be years before fish advisories can be lifted. All of these are compelling reasons to start as soon as possible with the cleanest standards.

Issue No. 9 - What is the economic cost to the state of having mercury contaminated lakes? What is the cost to the state if mercury rules are not implemented?

Joe Shefchek
Complete economic analyses based on the results of atmospheric deposition/Hg cycling fate modeling, which would estimate improvement to fish advisory levels from rule implementation. No action alternative should also consider future reductions from Federal MACT and potential multi-pollutant bills.

Annabeth Reitter
A study to assess the impact of mercury contamination and fish advisories on the water resources of the State and the users of those water resources to include trend assessments of representative measures such as property values, fishing license sales, boating sales, etc.

Wayne Stroessner
The rule and DNR commentary indicate the value of tourism in the state, but they do not attempt to place a value on what would result if mercury contamination caused tourists to be discouraged from visiting our lakes and streams especially for fishing. The rule covers the estimated costs for cleaning up our power plants. Perhaps a subjective value could be placed on the effect of lost fishing activities in the state. Under Draft Part IIB, Environmental Assessment: At a reduction of only five percent of fishing activities because of a "mercury scare," there could be a loss of 75,000 (1.5 millions x 5%) fishing

licenses; a loss of approximately $ 55,000,000 ($1.1 billion x 5%) in expenditures normally generated for the state. Adding to the loss in license sales is the significant revenue provided by sales of food, lodging, gasoline, and sporting equipment related to fishing as an activity that would produce another loss of $ 105,000,000 ($ 2.1 billion x 5%) from its normal annual economic impact of $ 2.1 billion statewide. The sport fishing industry accounts for 30,500 jobs in the state each year. Which means those 1,525 jobs could be lost.

Mark Yeager
Economic costs are so profound they cannot be accurately totaled at this time. Every lake in our state is under a fish advisory. In order for every lake to be affected, our air, water, soil and human health in WI is also negatively impacted. Costs will likely rise beyond our ability to deal effectively with the problem if rules are not implemented.

Remaining CAC Priority Issues: Issues not directly related to the proposed rules

Issue No. 10 - Better understanding of the source of mercury deposition.

Joe Shefchek
Update mercury emissions inventory to reflect most recent information on industrial, commercial, domestic and natural sources - including review of data available on the form of mercury emissions (i.e., ionic, elemental, or particulate).
Complete atmospheric deposition modeling to estimate the potential affect of regional controls on mercury deposition (i.e., what happens if mercury transport from surrounding states is eliminated) versus what happens to deposition if controls are implemented only in Wisconsin.

Annabeth Reitter
Establish a research council to develop the necessary information to identify mercury contributions from local and regional sources and assess environmental impacts. This work of the research council should serve as the foundation for establishing regulatory requirements. This work needs to be completed before regulatory reduction requirements are established.

Mark Yeager
See Mark's comments in #4 and #8 in the matrix of priority issues. To act decisively and with responsibility for the people in WI and future generations, a better understanding is not necessary now, but will come as we take action to clean up Hg deposition.

Issue No. 12 - What is the safe dose / exposure for wildlife?

Joe Shefchek
Complete a review of current studies and status update of results - consider WDNR Study on Mercury Exposure in Common Loons (2001 Progress Report is available).

Annabeth Reitter
Needs to be included as part of a regulatory needs assessment.

Mark Yeager
Note State Dept. of Health Toxicologist's report to CAC. Humans are likely less affected than loons, eagles, ospreys, mink, otters and wildlife whose diet is directly connected to fish consumption. Therefore Hg exposure and consequences on smaller organisms (i.e. wildlife) is more profound. There is no "safe" dose.

Issue No. 13 - Evaluate the infrastructure changes needed to support fuel switching.

Bill Skewes
If prescribed emission control technology is not capable of reducing emissions by required amounts, an alternative fuel source must be used. Thus, if coal-fired generation must be replaced by natural gas-fired generation, additional pipeline infrastructure will need to be constructed to serve additional load requirements. This may include a major upgrade of the existing gas transmission system.

Issue No. 15 - Assessment of the environmental impacts of the rule.

Issue No. 16 - Evaluate other states and federal programs and proposals.

Issue No. 17 - What are the implications for no or limited action on a state or federal level.

Ed Newman
These are touched on in the original environmental assessment but not covered adequately.

Issue No. 18 - Are there other environmental impacts associated with the implementation of this proposal?

Ed Newman
These are touched on in the original environmental assessment but not covered adequately.

Issue No. 22 - Impact on electricity bills.

Issue No. 26 - How did USEPA develop their recommendation on the acceptable dose / exposure for fish consumption advisories?

Issue No. 27 – Monitoring, reassessing and verification methods.

Issue No. 29 - Establish mercury emission summary for Wisconsin.

To help focus the dialogue at the retreat, we believe an issue paper should be prepared and made available to the committee at least a week in advance of the retreat. Each issue paper would include the following information. A sample issue paper is included.

Issue - A statement of what the issue is.
Summary of Public Comment – A summary of the different views expressed in public comment.
Provisions in the Proposed Rules - Provisions in the proposed rules that are relevant to the issue.
Committee Member Views – Includes comments that members have provided on the priority matrix and additional views from committee members received before the retreat. The committee
Additional Background – Other relevant information.
Alternatives – Committee members suggested resolutions.
Committee Recommendations – This section would reflect the outcome of the dialogue at the retreat. Committee members would have a period of time after the conclusion of the retreat to finalize justification of their positions.

Here is a sample issue paper:

(Sample Issue Paper)

CITIZEN ADVISORY COMMITTEE RETREAT

ISSUE E: The schedule and stringency of mercury emission reductions required of the four major electric utilities.

SUMMARY OF PUBLIC COMMENT:

PROVISIONS IN THE PROPOSED RULES:

NR 446.03 Baseline mercury emissions. Outlines the procedures for establishing baseline mercury emissions for major electric utilities and major industrial sources. This section also includes the procedures for newly affected sources to establish their baseline mercury emissions. These are sources that become major after the promulgation date of the rules. For major utilities baseline mercury emissions set the level from which reductions are required.

For the purpose of this rule, a major utility has annual mercury emissions of 100 pounds or more and a major stationary source has annual mercury emissions of 10 pounds or more.

NR 446.06 Mercury reduction requirements for major utilities. Requires reduction of mercury emissions from an established baseline in three steps over a fifteen-year period. The reductions are at five-year intervals and don't commence until five years

after promulgation. The first step requires a 30% reduction, the second reduction in ten years is 50% and the final reduction required is 90%.

COMMITTEE MEMBER VIEWS:

Joe Shefchek
Revise to WUA proposal of 10% reduction in 5 years and 40% reduction in 10 years.
Add a provision that will allow for alignment with Federal MACT and multi-pollutant regulations.
Conduct review of variables affecting time to implement rule (i.e., outage schedules, PSC approvals, joint ownership consideration, design and equipment availability, etc.)
Develop an option in the rule that allows for multi-pollutant controls, considering what the potential total emissions reductions would be versus a Hg-only approach.
Revise language for "rule evaluation reports" to include periodic consideration of federal multi-pollutant bills or regulations to determine interaction with WI mercury rule in order to address rule compatibility.
The exact impact of mercury controls on other air pollutant emissions (such as NOx, SO2 and PM) is not well understood and currently the subject of several studies because there are no commercially proven technologies in operation. Carbon injection could potentially result in increased emissions of particulate. Fuel switching could reduce mercury but increase/change emission of other air pollutants. Construction permits for emissions changes resulting from NR 446 are not exempt and the timeframe necessary to complete permitting approval could be triggered). Alternatively, future controls for NOx and SO2 could impact mercury speciation ultimately affecting selection of the type of mercury control technology, possible stranding costs if what is initially installed for NR 446 becomes less significant (especially if PSD/NSR or dispersion modeling is effective. Consideration of a multi-emission approach is critical for long-term planning regarding capital investments and shutdowns for construction to ensure energy reliability.

Annabeth Reitter
Develop technical and economic basis for establishing controls and reduction levels to include electric rate impacts and environmental benefits analysis. Reduction requirements need to be consistent with Federal requirements.

Mark Yeager
Instead of revising the rule to a more relaxed reduction level, write it for the best (cleanest) that new technology can implement. Committing to the highest standard earliest is also the most cost-effective for utilities to implement. Rather than conduct a review of variables, eliminate redundancy such as PSC involvement; (i.e., PSC having prejudiced themselves by defining their opinion before public hearings were concluded)
NR 446 should deal only with mercury. Much work could be done to clean up other pollutants with other rules yet to be revised.

Bill Skewes
(Issue No. 25 Relationship between early retirement and meeting rule provisions.) This refers to certification of reductions, but additional language is needed to ensure that

Wisconsin utilities are credited for mercury emission reduction achieved prior to enactment of federal rules.

ADDITIONAL BACKGROUND:

The Natural Resources Board requested that the proposed rules should include the percentage reductions and a phased schedule for achieving the reductions and a methodology for determining baseline emission levels. In addition, when the Natural Resources Board authorized hearings on the proposed rules they also requested that public comment be sought on alternatives to the amount and schedule of mercury reductions. The following alternatives were offered for comment during public hearings:

1. Require a two-step reduction schedule, 25% by 2006 and 90% by 2010. If trading is allowed, require 90% mercury reductions by 2008.

2. Expand reduction requirement to include all utilities and government owned boilers with more than 10 pounds of mercury emissions in one year including chlor-alkali plants, medical waste incinerators, municipal waste incinerators and other significant sources.

3. Include a provision for the virtual elimination of mercury 20 years after rule promulgation.

4. Require a two-step reduction schedule, 10% by 2007 and 40% by 2012.

5. Allow for a multi-pollutant reduction alternative that would allow a major utility the opportunity to propose a multi-pollutant reduction program instead of achieving the mercury reduction requirements in the rules. Mercury reductions would still need to be an element of the proposal, which would also require a commitment to provide other environmental benefits beyond existing laws and rules. The proposal would also need to include a schedule to accomplish the alternative program. The alternative program would be subject to a public hearing.

6. Do not have a regulatory program. Implement a voluntary program.

Includes Issue No. 1 – Agreed schedule of reductions. Criteria for setting mercury reduction levels. Why do we need phased reductions? Also, includes Issue No. 7 – Multi-pollutant control options and Issue No. 20 - Review methodology for baseline determination. Also involves Issue No. 24 - What impact might the proposed rules have on the emissions of other pollutants? and Issue No. 25 Relationship between early retirement and meeting rule provisions.

ALTERNATIVES:

1. Proceed with the proposed rules.

2. Implement a voluntary program.

3. Require a two-step reduction schedule, 10% by 2007 and 40% by 2012.

4. Require a two-step reduction schedule, 25% by 2006 and 90% by 2010. If trading is allowed, require 90% mercury reductions by 2008. Expand reduction requirement to include all utilities and government owned boilers with more than 10 pounds of mercury emissions in one year including chlor-alkali plants, medical waste incinerators, municipal waste incinerators and other significant sources. Include a provision for the virtual elimination of mercury 20 years after rule promulgation.

5. Include provision for a multi-pollutant reduction alternative that would allow a major utility the opportunity to propose a multi-pollutant reduction program instead of achieving the mercury reduction requirements in the rules. Mercury reductions would still need to be an element of the proposal, which would also require a commitment to provide other environmental benefits beyond existing laws and rules. The proposal would also need to include a schedule to accomplish the alternative program. The alternative program would be subject to a public hearing.

COMMITTEE RECOMMENDATIONS: